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ABSTRACT

The way students move through a community college once they have enrolled has crucial implications for policy-making and administration, but has been given inadequate attention by researchers. A model of student flow is described in terms of progress toward graduation, based on records of sources of students, freshmen and sophomore flows, and graduation patterns over five years. Over this period the percent increase in the number of graduations was greater than the percent increase in the number of sophomores, while the percent increase in the number of sophomores was greater than the percent increase in the number of freshmen. Students continuing college work increased in the "pipeline" at three times the rate of first-time collegians. An application of the model to the class of 1970 revealed that three times as many students went "straight through" as those who were "in and out," 60 percent of the "stop-outs" interrupted their studies for only one semester, and only one student out of four tried college briefly and dropped out. The evidence also suggests that as many students transferred before graduation as graduated. (Author/BB)

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STUDENT FLOW AT THE COMMUNITY COLLEGE

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This study applies a student flow model for the community college. Recent research on the class of 1970 is reported, providing the following insights:

-A stronger growth rate for graduations than for first time college students, and a stronger rate of increase for sophomores (halfway to the degree) than for freshmen.

-Students continuing college work increased three times as much as persons new to college in a five year period.

-In the Class of 1970, only one student in four tried college briefly and dropped out.

-Most 1970 students continued steadily (without semester interruptions) for varying numbers of Fall and Spring Semesters. Three times as many went "straight through" as those who were "in and out."

-Of the "stop-outs," 60 percent interrupted their studies only for one semester.

-There was some evidence that raised the question as to whether there were approximately as many transfers as there were graduations.

Statement of the Problem

The way students move through a community college has crucial implications for policy making and administration. Educational program planning and evaluation are affected by changing sources of students. There is a strong trend, for example, of women over 25 signing up for part time courses, often in the evening hours. This contrasts with the strong daytime enrollments of full time male students just out of high school during the 1960's.

The way the students flow through the community college once they have enrolled is important for planning, but has been given inadequate attention by researchers. It is known, for example, that most persons getting the bachelor's degree now take over four years to do it. What are the facts for the community college, often referred to as the "two-year" college? If the student gets an associate degree, does he do it in two years? Does he actually enroll for fifteen credit

JC 750 021

hours for four consecutive Fall and Spring semesters? Or do many students drop in and stop out, moving toward some personal goal (such as transfer, graduation, career opportunity, or promotion)?

The outcomes of college are also important for understanding student flow. Do students seek degrees in career programs, for example, in order to get a job? or do they already have that job before they graduate? How many students transfer successfully to a four-year college without the A.A. degree? How do graduations affect student flow? Questions like these emphasize the need for a student flow model. This report analyzes available data and recent research results in such a way as to show how students move through the community college.

There has been some research comment on the way students stop in and stop oup of community college flow, using the community college to achieve a variety of goals. One study followed up and reported nearly one thousand community college alumni in Florida, that only two percent could be called "dropouts." Previous research had suggested a dropout rate more nearly like 50 percent, referring to persons who did not get a degree. The Florida study, reported by Dr. James Wattenbarger, redefined dropout to mean students who had neither achieved their original goals nor changed their plans within three years. "The term dropout is not appropriate," Dr. Wattenbarger said. "Perhaps we should use 'stopout' since most students will be returning at subsequent times to complete their own educational goals." His interpretation was placed on the finding that of the students surveyed, 59 percent said they had achieved their goals, 32 percent were either pursuing their goals or had hopes to, and only 7 percent had changed their objectives. The remaining two percent were understood to be dropouts. (I.R.C. News and Notes, Florida Community/Junior College inter-institutional Research Council, Fall, 1973, p. 1).

Method of Study

Several sources of information were used to develop a picture of student flow. Routine records of Prince George's Community College (PGCC) were available to trace sources of students, freshman and sophomore flows and graduation patterns on a five-year basis. A special study of the Class of 1970 was also undertaken to assess the "in and out" patterns of attendance, in any. And finally, a Spring 1974 survey indicated some of the educational outcomes for students entering in 1970.

The "A.A. Degree" Model

As a first approximation for understanding student flow, it is useful to describe student flow in terms of progress towards graduation.

This general model fails to take into account other educational outcomes besides degrees, but has the advantage of being comparable with a more traditional point of view concerning college attendance and the degree. According to the traditional college model represented by the Ivy League of the 1930's, one may imagine a "typical" or "desirable" pattern whereby a student enrolls for four consecutive years and gets the B.A. Research has demonstrated that this college model no longer realistically describes what people actually do. Most who achieve a B.A. take more than four years to do so. Moreover, many go to college today for other purposes besides a degree, especially the community college. But if we understand the "degree-oriented" model, we can understand those who are not getting the degree in context. We may then raise questions about ways and means to help students achieve their goals, whatever those goals are, including the degree if that's what they want.

There is a way of organizing credentials and experience to capitalize on job opportunity. Insofar as the credit hour represents a certification of self-confidence and a particular set of behavioral skills, there is a way of accumulating credit hours to serve career as well as transfer goals. It is the career component which is showing strongest growth today.

Whether from the point of view of the transfer or the career student, however, there is a logical flow of students from local high schools through community college graduation. Many students follow this path every year (see Table I.) Interms of the "pipeline," most of the student body at PGCC since Fall 1969 have been "freshmen" (students with less than 28 credit hours). The "sophomore" is by definition a student on the second half of the way toward a degree, which currently requires about sixty credits. Sophomores are the pool from which graduates flow. Students must be sophomores on the way toward the degree. This establishes one aspect of the student flow concept.

As indicated in Table I, five steps describe student flow in the A.A. degree model: high school graduation, college matriculation, freshman status, sophomore status, and then graduation. In the past five years, PGCC graduations increased faster (167 percent) than the number of sophomores (113 percent). Sophomores increased at a faster rate than the freshmen (71 percent). Freshmen increased faster than matriculations from high school (6 percent). The implications may not be what they would appear to be at first glance, however, because there are other sources of community college students besides students straight out of high school.

The County high schools, one principal origin of students, had only a 14 percent growth in diplomas in the past five years. If students came to the community college only straight out of high school, and left two years later, Prince George's Community College would not be growing. The fact is that students are coming more and staying longer, as the PGCC Model will show.

There is a way of checking the student flow model by comparing the expectations suggested by the five-year data with actual data. The flow in the 1969-1973 period would lead to the anticipation that there would be about a thousand graudates in 1974-75. There would also be perhaps 2,200 sophomores and 7,500 freshmen in Fall 1974. Approximately 1,400 of these freshmen would be regular students direct from high school. The number of graduates is not yet known. Some of the expectations of the model are met, however, or very nearly met. (See Table 1.) The level of 1,324 persons who actually enrolled in Fall 1974 direct from high school suggests the only strong area of "unknowns" in the flow process, since it involves a reversion to lower levels than the previous year.

Sources of New and Returning Students

As shown in Table 2, the number of *first-time collegians* attending PGCC increased by a thousand in the 1969-1973 period. In the same five years, the number of *students continuing college work* increased by about three thousand. Thus the "returning student" in the broadest sense of the term was increasing in the pipeline in approximately three times the numbers of the persons new to college study. This suggests that students are staying longer. Table 2 indicates that regular students from the previous term are the major source of all students continuing in college. Transfers from other colleges and readmits follow next as sources of students continuing college. Special students are a negligible source. (The special student is usually thought of as one who has not yet elected a "regular" curriculum or major field.)

The expectation of the model based on 1969-1973 data is that 6,500 or 7,000 students continuing college work would be the main component of the Fall 1974 enrollments. Between 3,000 and 3,500 first time students would also enroll. Observed data for 1974 indicate that these expectations would be well-founded, although first-time students would be at the lower end of the range of expectations.

Student Flow Components

As shown in Table 3, the College's total fall enrollment can be analyzed into components in a number of ways. The student body can be thought of as freshmen and sophomores. But students can also be thought of as being Regular and Special, Returning and First Time, or Part Time and Full Time. Each of these indicators tells us something about student flow.

By Fall 1973, freshmen were the largest group according to these indicators. This means that most students had not yet reached the halfway point to the degree. They were at the front end of the pipeline. Regular students were another large group, indicating that specific curriculums of study were important to most students.

Returning students were prominent, suggesting that continuing education after high school is an important reality. Finally, the part time student was a major figure, perhaps explaining why it was taking so long for many to achieve the degree or its equivalent.

Expectations generated by the flow model would suggest approximately 9,800 students in Fall 1974, with steady growth in each set of components. This expectation is not borne out in several instances, however, leading to the inference that either the flow process is changing or there has been an exception to the trend. Extraneous information suggests that a change in advisement probably affected the decrease in the "Special" category for Fall 1974, but no such ready explanation is available to account for the decrease in first time students or the decrease in full time students. It may be that the students new to any college will be a declining source of student flow in the years ahead, as the high school graduate does other things besides going straight to college. Much more evidence is needed, however, before new trend lines will be sure and clear.

Following the Same Students as They Flow: The Class of 1970

Comparing freshmen, sophomores, and the like from one Fall Term to the next gives one picture of student flow. Regardless of whether they are the same individuals or not, the count of freshmen reveals something about how students are doing in the pipeline. It is as though a snapshot were available each year to show the state of the College, but this shapshot by its very nature permits only a glimpse at the pipeline at a point in time. Another approach is possible, whereby the same students are picked up at a given point in time, and are then followed as they flow through the pipeline for a number of years. For the purpose of developing this aspect of the Community College Model, original research was undertaken concerning 2,416 students entering Prince George's Community College at the beginning of the 1970-71 academic year. Their records were traced in terms of attendance patterns of each individual student for the successive Spring, Fall and Summer Terms up to the Spring Term of 1974. The paragraphs which follow document the results of this research.

How Students Stopped Out or Continued After Fall 1970

As noted earlier, there was some research opinion that an "in and out" pattern of attendance characterized the way many students were using the community college. In order to check this view, it was decided to review hard data on file at Prince George's Community College. The question was this: based on records of students entering in 1970, precisely what were the observable patterns of dropping in and dropping out or stopping in and stopping out, over a period or three years? This was the same time frame used in the Florida research study.

As shown in Table 5, students continuing on in the Spring at PGCC tended to predominate over those continuing over to the Fall in any given year. Apparently the summer interruption has its effects on the cadence of continuing education (although it was noted that the longer a student attended, the higher was the mean number of extra summer sessions he attended). This may suggest that a quarterly or trimester system should be considered in the interests of encouraging straight-through performance of those students who wish to press on toward the degree or transfer without interruption.

Most students who were "in-and-outs" during the period under study interrupted their studies for only a single spring or fall semester. As shown in Table 6, 266 of the 445 "stop-outs" (60 percent) were out for only one major semester before returning again. Another 95 students were out for two semesters (cumulative percentage of stop-out for either one or two semesters, 81 percent). It appears that the longer a student stays out, the less likely it is he will return at least in the short run (three years). Shorter-term constraints on alternatives for behavior forbid too much generalizing on this observation. There is a possibility, however, that continuing education through the lifespan may not be a phenomenon generally supported by community college evidence. Further research is needed, including investigation of collateral evidence at other community colleges besides Prince George's.

One conclusion that can be drawn is that for Prince George's Community College at least, and possibly for other community colleges like it, the theory of stop-ins and stop-outs does not apply. A difference with respect to the Florida research is that here the observations are recorded student behaviors. In the Florida study, the expressed intentions of the former students were an important part of the evidence used. Whether the former PGCC students had similar intentions that would later be translated into action is an open question.

Community College Outcomes; Graduations and Transfers

A follow-up study of students entering Prince George's Community College in 1970 was conducted in the Spring of 1974. Special analyses were made of 69 graduates and 67 "quasi-graduates" (students who had accumulated 58 or more credits) who responded. The results of this study are reported in greater detail elsewhere, but the findings of this survey suggest that there may be as many persons transferring without graduation as there are students graduating.

The question of transfer as an outcome comparable with graduation is an important one. Students can transfer without the home college knowing about it. A recent development in Maryland is an attempt to have all public colleges and the university system notify each other of within-state transfers. This information sharing is just being

organized, however, and Maryland's transfer patterns are in flux due to policy changes and admission practices of the various institutions. Only time will tell what generalizations can be made on this score. Meanwhile, the problem will remain, how can institutions know the count of successful transfers outside the state, e.g., to four-year institutions in the District of Columbia?

If there are as many or nearly as many students transferring as there are graudating, there are important implications for flow. Transfer is one way of getting out of the pipeline. The paradox is that successful service of students, whether by graduation or transfer, reduces the pool from which students are flowing on to further college work. It may be that of every ten students enrolled, one will leave the pipeline by graduation next June, and another by transfer. The facts remain to be verified. But if this is the case, the "non-returns" in the Fall, representing nearly half (48 percent) of the Fall 1974 enrollments, would be accounted for in large part by the twenty percent in the category of graduating or transferring.

Graduates, Transfers, and Dropouts: Discussion of Implications

When the College loses students from their regular flow through the pipeline, they may not return again. It would pay the College, in terms of maximum service to its students, to assume the more ultimate goals and maximize incentives for students to continue college work without interruption, until they graduate, transfer, achieve career goals, or inevitably discover that continuing college work is not for them. Survey evidence indicates that the students appreciate the quality of instruction and faculty services on their behalf. The same survey evidence indicates that for career-program graduates, most have jobs in their field before getting the A.A. degree. It may be that some others are getting jobs while still "sophomores," and finding no further advantage in getting the degree. The question can then be asked, what incentives and encouragements are being used or devised to keep students moving toward degree, transfer, or job, until the student himself decides he has had enough? Could we think the unthinkable, and charge students less tuition as they near the degree? (And can we dispense with graduation fees?) Since returning students are prime sources of growth and service, they deserve some kind of special attention.

What provisions are being made, for example, for recognizing and rewarding students in sophomore status? Is there any special advantage given to students returning each fall after being registered in the spring? How can "continuing" behavior be reinforced, or at least not ignored? What are the obstacles for the students who would like to continue, but for some reason can't? Surely there

are the obstacles the College can't do anything about, but what obstacles can the College do something about? Developmental studies is an example of the College's efforts on behalf of its students, to help them persevere as much as they choose. But how about the student who does not need academic help, but rather a program of cooperative education (on-the-job learning) as an incentive to get the degree credential? In a particular field? How can the job placement service help, by earlier placement on a job, for example, for the student who doesn't really want the degree? Questions like these are challenges for further research, planning, and service.

Other Variables

Needless to say, the foregoing is not the whole story. Much additional information is known that permits a keener insight into how students flow through Prince George's Community College. Recent studies of the College's institutional research office have documented multi-year trends in the enrollments of women, blacks, older students, career-oriented students, and the so-called special student (not enrolled in a regular curriculum or major field of study). We know that the career student in particular has contributed to the growth of "sophomores" in the pipeline and of graduates receiving the A.A. degree. More needs to be known on a longitudinal basis about how these variables interact. This will permit the College to be appropriately responsive to the changing characteristics and needs of its students.

The Student Flow Process

The word model can mean a plan or an exemplary standard. In this report , the term refers to a mathematical model: a set of data showing relationships that change in response to internal decisions and outside forces. Mathematical models are used increasingly in planning and budgeting applications. They show how changes in inputs, process, and outcomes influence each other. This makes contingency planning possible. What will the future be like if circumstances are the same, or if they change? Models suggest answers.

In the Community College enrollments are influenced by student decisions, administrative policy, and changes in the environment. The present model uses selected trends in student origins, student flow, and educational outcomes at Prince George's Community College. This model represents an understanding of how students are using the College. Such understanding makes policy alternatives clearer. Consequences of new programs for student flow, for example, become visible in terms of freshmen and sophomore enrollments, graduations, transfers, and other outcomes.

The PGCC Model can readily be visualized. Students enter or re-enter when courses are scheduled, making the entry process of crucial importance for continuing flow. Obstacles to entry or re-entry can disrupt flow. The continuation process is a function of how well faculty and staff facilitate the accumulation of credit hours, from freshman and sophomore status to degree, transfer, or the achievement of career or personal goals.

Implications for Information Development Needed

Many college information systems are chiefly accounting systems, applying computer power to a review of past information concerning the dollar, the student credit, or grading systems. These applications are important and necessary. But they do not in and of themselves provide insights into how things are changing, and what new directions are emerging. Planning systems, budgeting systems, and student projection models are needed that permit a view of alternative futures, in relation to alternative priorities. In this connection, a student flow model along the lines described in this study would prove an invaluable resource if it were to be computerized. Greater detail would be permitted by automation, e.g., information on how career programs and disciplines interact with student flow. The result would be a greater degree of quality control information, not to measure how well the sutdents are doing, but to measure how well the College is doing.

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Table I

PRINCE GEORGE'S COMMUNITY COLLEGE

Five-Year Comparisons of Student Flow Indicators, 1969-1974

	1969-70	1970-71	1971-72	1972-73	1973-74	5-yr. % Gain	Fall 1974
Graduates	302	448	528	651	806	167%	N.A.
"Sophomores"	954	1,389	1,619	1,790	2,077	118%	2,157
Freshmen	4,209	4,834	5,561	6,098	7,181	71%	7,567
Regular Direct from High School	1,401	1,313	1,311	1,309	1,481	6%	1,324
County High School Graduates	7,711	8,423	8,284	8,078	8,829	14%	N.A.

SOURCE: Office of Institutional Research
Prince George's Community College

10/22/74

Table 2

PRINCE GEORGE'S COMMUNITY COLLEGE

New and Returning Students by Type

	1969	1970	1971	1972	1973	1974
A. First time in any college	2,135	2,245	2,560	2,727	3,118	3,081
1. Regular, direct from High School	1,401	1,313	1,311	1,309	1,481	1,324
2. Regular, not direct from High School	454	387	422	470	657	819
3. Special	280	545	827	948	980	938
B. Continuing college work	3,028	3,978	4,620	5,161	6,140	6,630
1. Regular from previous term	1,906	2,645	2,991	3,398	4,064	4,368
2. Transfers	576	747	847	885	1,054	980
3. Readmits	546	526	633	666	860	997
4. Special to regular	0	62	149	212	162	285

SOURCE: Office of Institutional Research
Prince George's Community College

10/22/74

Table 3

PRINCE GEORGE'S COMMUNITY COLLEGE

Student Flow Components of Opening Fall Enrollments, 1969-1973

	1969	1970	1971	1972	1973	1974
TOTAL ENROLLMENT	(5,163)	(6,223)	(7,180)	(7,888)	(9,258)	(9,725)
Freshmen	4,209	4,834	5,561	6,098	7,181	7,567
Sophomores	954	1,389	1,619	1,790	2,077	2,158
Regular	4,665	5,113	5,499	5,852	6,959	7,483
Special	498	1,110	1,681	2,036	2,299	2,242
Returning	3,028	3,978	4,620	5,161	6,140	6,630
First Time	2,135	2,245	2,560	2,727	3,118	3,081
Part Time	1,982	3,856	3,787	4,437	5,409	6,034
Full Time	3,181	3,367	3,393	3,451	3,849	3,691

SOURCE: Office of Institutional Research
Prince George's Community College

10/22/74

Table 4

Summary Table Showing Attendance Patterns
of 2,416 Students Entering in Summer/Fall of 1970

Category	Number	%
1. One-time attenders	633	26%
2. Attending beyond Fall 1970	1,749	72%
a. Straight thru	(1,271)	(54%)
b. In-and-out	(445)	(18%)
3. Status unknown	34	1

Source: Office of Institutional Research
Prince George's Community College

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* Does not add to 100% due to rounding

10/22/74

Table 5

Frequency Distribution of 1749 Students Continuing Without Interruption After Fall 1970 by Semesters Attended and Extra Summer Sessions Attended

No. of Students	No. of Semesters*	Mean No. of Summer Sessions
354	1	1.33
185	2	1.54
333	3	1.94
133	4	2.05
163	5	2.24
136	6	2.45

Source: Office of Institutional Research
Prince George's Community College

* Does not include Summer/Fall 1970

10/22/74

Table 6

Distribution of 445 STOP-OUTS Who Returned According to the Number of Semesters Before They Stopped In Again

Students		Semesters Out *
No.	%	
266	60%	1
95	21%	2
50	11%	3
25	6%	4
9	2%	5
445	100%	

Source: Office of Institutional Research
Prince George's Community College

* The mean number of "semester out" was 1.7.

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